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REMARKS

I. Introduction

In response to the Office Action dated June 27, 2007, Applicants have amended claims 1, 12, 13 and 15 and cancelled claims 2 and 14, without prejudice. The limitations of claim 2 have been incorporated into claims 1 and 12. Support for the amendments to claim 13 may be found in original claims 14 and paragraphs [0042] and [0051] of the specification. Claim 15 has been amended to be dependent upon claim 13. No new matter has been added.

In response to the pending Office Action, Applicants respectfully submit that all pending claims are patentable over the cited prior art for the reasons set forth below.

II. The Rejection Of Claims 13-15 Under 35 U.S.C. § 102

Claims 13-15 were rejected under 35 U.S.C. § 102(b) as being anticipated by Frager et al. (USP No. 2,480,845). Applicants respectfully submit that Frager fails to anticipate claims 13-15 for at least the following reasons.

With regard to the present invention, amended claim 13 recites, in-part, an apparatus for separating a metal-resin joint comprising:...connecting member A comprising a conductive material a part of which is coated with an insulating oxide layer; (f) a connecting member B for electrically connecting the other terminal of said power source with said counter electrode; (g) a measuring means for measuring the potential of said metal portion; and (h) a controlling means for controlling the voltage applied between said metal portion and said counter electrode such that the potential of said metal portion measured by said measuring means is -2 V or higher and -0.6 V or lower relative to the standard hydrogen electrode.

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One embodiment of the present invention is characterized in that a connecting member A, which connects the metal portion serving as a negative electrode with one terminal of the power source, is partially coated with an insulating oxide layer. This insulating oxide layer helps to prevent the apparatus from damage due to alkaline solution creeping up the lead, which may cause the device to fail.

It is alleged that Frager discloses a bath-type container having a metal surface of the object being treated which is coated with an insulating ferric oxide layer. However, the ferric oxide coating disclosed in Frager is Fe_3O_4 (see, col. 2, lines 7-19 of Frager). Fe_3O_4 is well known an electric conductor, not an electric insulator, as suggested in the Office Action. Furthermore, Fe_3O_4 is formed on the anode side and not formed on the cathode side (see, col. 2, lines 11-12). Since creeping of the alkaline solution is unlikely to occur on the anode side, the oxide layer of Frager would not be used in the present invention. In view of the above, Frager fails to disclose an apparatus for separating a metal-resin joint comprising a conductive material a part of which is coated with an insulating oxide layer.

As the Examiner is aware, anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). As Frager fails to disclose an apparatus for separating a metal-resin joint comprising:...connecting member A comprising a conductive material a part of which is coated with an insulating oxide layer, it is clear that Frager fails to anticipate amended claim 13, or any claim dependent thereon. Therefore, it is respectfully submitted that amended claim 13 is allowable subject matter over the cited prior art.

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III. The Rejection Of Claims 1-12 Under 35 U.S.C. § 103

Claims 1-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Binger et al. (USP No. 4,020,992) in view of Frager et al. (USP No. 2,480,845). Applicants respectfully traverse this rejection for at least the following reasons.

With regard to the present invention, amended claims 1 and 12 recite, in-part, a method comprising the step of: applying a voltage over a certain time period between the metal portion of said joint and said counter electrode such that the potential of said metal portion is –2 V or higher and -0.6 V or lower relative to the standard hydrogen electrode.

It is admitted in the Office Action that Binger fails to disclose the step of amended claims 1 and 12 of the present invention of immersing the components in an alkaline solution and applying a voltage such that the potential of the metal is lowered. Frager allegedly remedies this deficiency by teaching separation of plastic resin from metal using such alkali solution in an electrolytic bath (see, col. 1, lines 35-51 and col. 2, line 53-col. 3, line 3 of Frager).

However, the proposed combination of cited prior art references is improper. The invention of Binger is directed to a method of separating plastic from metal in which the pieces are ***frozen in liquid nitrogen at temperatures of from -150 to -250 °F*** (see, col. 2, lines 23-25). Binger explains that the pieces are chilled and maintained at a low temperature so that they become brittle to aid in the separation of the plastic and metal. In contrast, the Frager reference states that the optimum temperature of the bath for separation is from ***200 to 220 °F***. As is clear, these two temperature ranges are not compatible with one another. In addition, the Binger invention discharges electricity to the plastic/metal pieces in a ***dry nitrogen atmosphere*** to prevent condensed moisture from forming on the pieces which makes separation difficult. In

contrast, the Frager reference performs the electrolytic separation in ***aqueous alkaline solution***. As is clear, the invention of Binger cannot be performed under the conditions of the Frager reference.

As is well known in patent law, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification, *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Thus, as there is no suggestion or motivation to make the proposed modification, the combination of Binger and Frager is improper.

Moreover, in the method disclosed in Frager, electrolysis is performed in an aqueous alkaline solution by using the metal component to be separated as the anode, and the gas produced therefrom is used to remove the resin coating from the metal surface. Thus, the metal is oxided, and may dissolve as a result. In contrast, the method disclosed in claim 1 of present invention in which the potential of the voltage applied between the metal portion of the joint and the counter electrode is –2 V or higher and -0.6 V or lower relative to the standard hydrogen electrode.

Accordingly, Frager is silent with respect to the relation between the potential of metal in the alkaline solution. The present invention maintains the potential at the claimed range because the surface tension of the alkaline solution on the metal surface is lowered by electrocapillarity. This results in promotion of the transport of the alkaline solution to the metal-resin joint interface and therefore, separation at the interface of the metal-resin. Furthermore, maintaining the potential in the claimed range suppresses the evolution of hydrogen gas and the consumption of electric power. Accordingly, neither Binger nor Frager teach or suggest the step of applying a

voltage over a certain time period between the metal portion of said joint and said counter electrode such that the potential of said metal portion is –2 V or higher and -0.6 V or lower relative to the standard hydrogen electrode.

As is well known, in order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA1974), and as Binger and Frager, at a minimum, both fail to teach or suggest a method for separating a metal-resin joint comprising the steps of: (1) immersing an article comprising a metal-resin joint with a counter electrode in an alkaline solution; and (2) applying a voltage over a certain time period between the metal portion of said joint and said counter electrode such that the potential of said metal portion is –2 V or higher and -0.6 V or lower relative to the standard hydrogen electrode, it is submitted that Binger and Frager, alone or in combination, do not render claims 1, 12, or any pending claims dependent thereon, obvious.

IV. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1, 12 and 13 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

V. Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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